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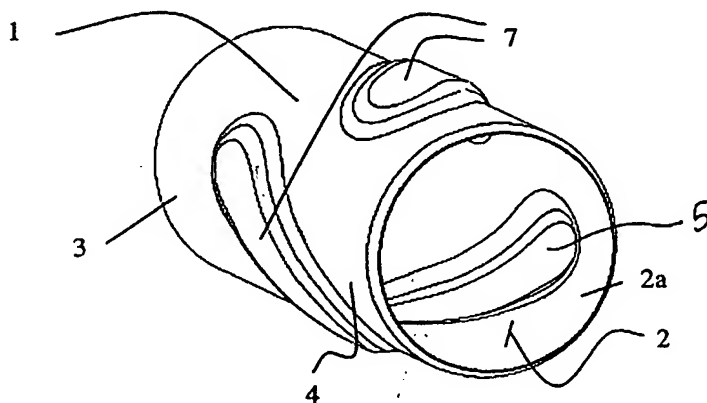
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2,404,577 23 September 2002 (23.09.2002) CA
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- (54) Title: **PIPE CENTRALIZER AND METHOD OF FORMING**
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(54) Title: **PIPE CENTRALIZER AND METHOD OF FORMING**



the mold elements including cavities spaced and shaped in the configuration of desired side wall centralizer ribs, the mold elements being supported substantially against expansion radially outward from their position about the tubular work piece; applying sufficient pressure to the side wall through the inner bore to force the tubular sidewall radially outward against the confining surface and into the mold cavities to plastically deform the side wall to form centralizer ribs on the side wall; and removing the tubular work piece from the confining surface.

(57) Abstract: A centralizer for installing on a metal pipe. The centralizer includes a generally tubular body having a central opening sufficiently large to allow insertion therethrough of a pipe having an external diameter; a sidewall of substantially uniform thickness including an inner-facing surface directed to the central opening and an outer-facing surface onto which are formed a plurality of outwardly protruding ribs by hydroforming the sidewall. A method for hydroforming a centralizer including placing a length of metal tubular work piece, the work piece having a sidewall and an central opening, inside a confining surface comprised of mold elements,

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*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

# INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER  
IPC 7 E21B17/10 B21D26/02

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)  
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Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the International search (name of data base and, where practical, search terms used)

EPO-Internal, PAJ, WPI Data

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	GB 2 197 008 A (MIKOLAJCZYK RAYMOND FELIX) 11 May 1988 (1988-05-11) figures 2,3	1-4, 40
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A	DE 10 02 423 B (LICENTIA GMBH) 14 February 1957 (1957-02-14) the whole document	1, 12, 27, 40
A	WO 02 32596 A (GENSEBERGER ERICH ;COBB MARK (CA); COSMA INTERNAT INC (CA)) 25 April 2002 (2002-04-25) the whole document	1, 12, 27, 40

☐ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

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Information on patent family members

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